

REMARKS

Claims 1-22 are now in the application. By this Amendment, claims 1-5 and 14-18 have been amended to comply with formal requirements. Claims 7-13 have been previously withdrawn by the Examiner. Claim 22 has been added. Support for claim 22 is found at least at page 3, lines 34-39, of the specification. No new matter has been added by this response.

Applicant appreciates the courtesies extended by Examiner Troy and Examiner Bergin to Applicant's representative during the February 17, 2010 telephone interview. The following remarks constitute Applicant's separate Summary of the Substance of Interview.

Claims 1-6 and 14-21 are rejected under 35 USC § 112, second paragraph, because the claims are considered to recite a method of combustion instead of a method of producing tubular propellant charges. Claim 1 has been amended as suggested in the Office Action.

Examiner Troy asserted during the February 17 interview that the claims in their present form do not recite method steps. The pending claims have been amended to more positively recite method steps.

Further, Examiner Bergin asserted during the February 17 interview that the claim recitation e-dimension distance is not clearly refined. Applicant respectfully disagrees with this assertion. As discussed during the interview, Applicant's disclosure, defines, at page 4, lines 34-36, the e-dimension as the distance between two combustion channels.

Claims 1-6 and 14-21 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 694,295 to Maxim in view of U.S. Patent Application Publication No. 2005/0066835 to Hafstrand.

Independent claim 1, as amended, recites delaying the propagation of ignition of said all outer surfaces of at least one propellant tube, so that ignition of the propellant tubes is successively done one after the other and combustion of a propellant tube is partially mutually overlapping the combustion of the next propellant tube.

The Office Action acknowledges that the applied citations fail to suggest features corresponding to combustion of a propellant tube is partially mutually overlapping the combustion of the next propellant tube such that the maximum pressure within the barrel weapon resulting from each combustion is equal to or slightly below a maximum operational pressure of the barrel weapon, as recited in independent claim 1. However, the Office Action asserts that it would have been obvious to find an optimum pressure through routine experimentation.

However, Maxim and Hafstrand fail to recognize, and do not even mention, the pressure within a barrel during combustion. Moreover, Hafstrand teaches, at paragraph [0005], to attempt by all possible means to increase the artillery's range of fire. As set forth in MPEP §2144.05 II. (B), only result-effective variables can be optimized. Specifically, a particular parameter must first be recognized as a result-effective variable, i.e., a variable which achieves a recognized result, before the determination of the optimum or workable ranges of said variable might be characterized as routine experimentation. *In re Antonie*, 559 F.2d 618, 195 USPQ 6 (CCPA 1977). Thus, because the applied citations fail to recognize that the performance of a barrel weapon depends on the maximum operational pressure, a skilled artisan would not have been motivated to modify the methods suggested in Maxim and Hafstrand, let alone have arrived at the specific features positively recited in the pending claims.

In addition, Maxim teaches away from the claimed subject matter. In particular, Maxim suggests, at page 2, col. 81-86, that "[i]n all of the foregoing forms the perforations are of such dimensions and relative thickness of material between them, so as to cause the simultaneous completion of combustion of the explosive throughout the mass." During the February 17 interview, Examiner Troy asserted that the casing suggested in Fig. 8 has a partially overlapping sequence of combustion. However, even if a delay in the begin of combustion of one cylinder in the cartridge of Maxim were to occur, would this not preclude a simultaneous combustion.

Moreover, in a preferred embodiment of the claimed subject matter, older artillery pieces can be provided with up-to-date ammunition, taking into account that an increase in performance cannot exceed a maximum operating pressure of the barrel weapon. Specifically, the method recited in added claim 22 provides for replacing a loose granular perforated propellant with the at

least two propellant charges. Applicants respectfully submit that the applied citations fail to provide for a method in which older artillery pieces can be provided with updated ammunition.

In view of the above amendment, applicant believes the pending application is in condition for allowance.

Applicant believes no fee is due with this response. However, if a fee is due, please charge our Deposit Account No. 22-0185, under Order No. 20459-00400-US1 from which the undersigned is authorized to draw.

Dated: March 8, 2010

Respectfully submitted,

Electronic signature: /Georg M. Hasselmann/
Georg M. Hasselmann
Registration No.: 62,324
CONNOLLY BOVE LODGE & HUTZ LLP
1875 Eye Street, NW
Suite 1100
Washington, DC 20006
(202) 331-7111
(202) 293-6229 (Fax)
Attorney for Applicant